User Manual

HMI Hardware

BrainChild

UMHW01A
Rev 3/2012

GRAPHIC SYMBOLS

INFORMATION, it helps users with more details about the topic and failure to follow may lead to unpredictable results.

WARNING, Failure to follow may lead to minor injury or damage / malfunctioning of equipment

DANGER, Failure to follow may lead to injury or fatal accident to operating personal or damage/malfunctioning of equipment

CAUTION, Failure to follow may lead to malfunctioning of equipment, damage or repair

Protective Earth

DC Supply

PREFACE

Original equipment manufacturer reserves the right to change information available in this document without notice. Original Equipment manufacturer is not liable for any damages incurred to equipment/personal during installation or use of equipment as explained in this document. User must acquire sufficient knowledge & skills prior to use the equipment in the application and follow all the local standards & regulations to meet safety requirements

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1. General

1.1 Instructions

Read Installation and Operation manuals carefully before installation, repairs, or commissioning of the equipment

Follow all local standards/regulations for using electrical power supply, connection to the equipment, grounding, shielding during installation and commissioning.

Obtain sufficient skills and training before using the equipment.

If any damages are observed in transportation, inform (to) the supplier with supporting information including product details and photographs.

General Precaution

Use Restriction

These products are not authorized for use in life supporting systems, aircraft navigation control systems, military systems and any other application where performance failure could be life threatening or otherwise catastrophic.

Disassembling or Modification

Do not disassemble or modify LCD module. It may damage sensitive parts inside LCD module and may cause scratches of dust on display. Manufacturer does not warrant the module if customers disassemble or modify LCD module.

Breakage of LCD display

If LCD display is broken and liquid crystal spills out, do not ingest or inhale liquid crystal and do not contact liquid crystal with skin.

If liquid crystal comes in contact mouth or eyes, rinse out with water immediately.

If liquid crystal comes in contact with skin or clothes, wash it off immediately with alcohol and rinse thoroughly with water.

Handle carefully any chips of glass it may cause injury, when glass is broken.

Absolute ratings

Do not exceed the absolute maximum rating values such as supply voltage, environment temperature etc, otherwise LCD module might get damaged.

Please do not leave LCD module in the environment of high humidity and high temperature for long time.

It is recommended to employ protection circuit for power supply.

Operation

Do not touch, push or rub the LCD display surface with any thing harder than HB pencil lead.

Use fingerstalls of soft gloves in order to keep clean display quality.

When LCD display surface is dusty, please wipe gently with absorbent cotton or other soft material.

Wipe off saliva or water drops as soon as possible. If saliva or water drops contact with polarizer for a long time, they may cause deformation or color fading.

When cleaning the adhesives, please use absorbent cotton wetted with a little petroleum benzene or other adequate solvent.

Static Electricity

Protection film must remove very slowly from the surface of LCD module to prevent from electrostatic occurrence. Persons handle the LCD display should be grounded through adequate methods.

Strong light exposure

The LCD display shall be not exposed to strong light such as direct sunlight. LCD display characteristics may be changed.

Disposal

When disposing LCD module, obey the local environmental regulations.

1.2 Standards, Certificates and Approvals

The table below shows the approvals that may be available.

Description	Details
UL approval	UL 508 and CSA C22.2 No.142
Low Voltage Directive	2006/95/EC
EMC Directive	2004/108/EC
Requirements for Emission	EN 61000-6-4 :2007
Requirements for Interference Immunity	EN 61000-6-2 :2005
Tick mark for Australia	AS/NZS CISPR 11:2004
FCC	FCC Part 15, Subpart B, Class A

1.3 Base Standards for EMC & Safety

Description	Details
Electrostatic discharge	IEC 61000-4-2: 2008
Radiated radio-frequency electromagnetic fields	IEC 61000-4-3: 2006 + A1:2007 + A2:2010
Electrical fast transient/burst	IEC 61000-4-4: 2004 + A1: 2010
Surge	IEC 61000-4-5: 2005
Conducted disturbances induced by radio-frequency fields	IEC 61000-4-6: 2008
Power frequency magnetic field	IEC 61000-4-8: 2009
Voltage dips, short interruptions and voltage variations	IEC 61000-4-11: 2004
Emission from Electromagnetic fields	CISPR 11:2009 + A1:2010 Class A
Harmonics Current	IEC61000-3-2:2005 + A1:2008 + A2:2009
Voltage Fluctuation and Flicks	IEC61000-3-3:2008
Requirements for Safety	EN61010-1:2001

1.4 Protective class

Description	Details
Standard enclosures	IP 65 (Front), IP20 housing and terminals
Stainless steel front – Option	IP 66K (Front), IP20 housing and terminals

1.5 Transport & Storage conditions

The following specifications apply

Description	Details
Drop with packing conforming to IEC 60068-2-31	10 drops from 60cm on 1 corner, 3 edges, 6 surfaces
Drop with out packing	Nil
Temperature	-20 ^{0}C to + 60 ^{0}C
Relative Humidity	10% to 90%, no condensation
Altitude	2000 meters maximum
Sinusoidal vibration conforming to IEC 60068-2-6	5 to 10 Hz: 3.5 mm amplitude 10 to 150 Hz: 2g 1oct/min. 40 sweeps
Shock conforming to IEC 60068-2-29	3 shocks per direction 11ms 15g

Best conditions for storage of LCD display modules

1. Room ambient temperature 15 ^{0} to 35 ^{0} C and 65% RH or less.
2. Do not store in surroundings containing organic solvent or corrosive gas.
3. Store HMI in anti-electrostatic container or bag.

1.6 Operating conditions

Description	Details
Temperature	0 ^{0}C to + 50 ^{0}C
Relative Humidity	10% to 90%, no condensation
Altitude	2000 meters maximum
Pollution	Degree 2
Sinusoidal vibration conforming to IEC 60068-2-6	10 to 58Hz: 0.75mm amplitude 58 to 150Hz: 1g 1oct/min. 1 sweep
Shock conforming to IEC 60068-2-29	3 shocks per direction 11ms 10g

In the case of temperatures below 0 ^{O}C, the response time of liquid crystal becomes slower and color of the display will be darker than normal. Do not operate HMI in ambient temperature less than 0 ^{O}C.

1.7 LCD specifications

Description	Details
Touch operations	1,000,000 times using R 0.8 Polyacetal stylus with force 250g
Vibration test	10-55 Hz, Stroke: 1.5mm, Sweep: 10-55-10Hz, 2 hrs. for each direction of X, Y, Z
Shock test	100 G, 6 ms, +/- X, +/- Y, +/- Z, 3 times for each direction
Package vibration test	0.015G*G/Hz from 5-200 Hz, -6bB /Octave from 200-500 Hz, 2 hrs for each direction of X, Y, Z
Package drop test	10 drops from 60 cm on 1 corner, 3 edges, 6 surfaces

Typical View Angle

Model	HMI 4.3”	HMI 7” (LOW COST)	HMI 7” (HIGH PERFORMANCE)	HMI 10”	HMI 15”
Vertical (Up/Down)	50 ^{O}/ 70 ^{O}	50 ^{O}/ 70 ^{O}	50 ^{O}/ 70 ^{O}	60 ^{O}/ 70 ^{O}	80^{O}/ 80 ^{O}
Horizontal (Left/Right)	70 ^{O}/ 70 ^{O}	70 ^{O}/ 70 ^{O}	70 ^{O}/ 70 ^{O}	75 ^{O}/ 75 ^{O}	85 ^{O}/ 85 ^{O}

1.8 Package check list

Description	Details
HMI device	
Power supply Connector	
Mounting kit	
CD with BSP and User manual	

2. Products Overview

Five HMI models HMI 4.3", HMI 7" (Low Cost), HMI 7" (High Performance), HMI 10" & HMI 15" are available.

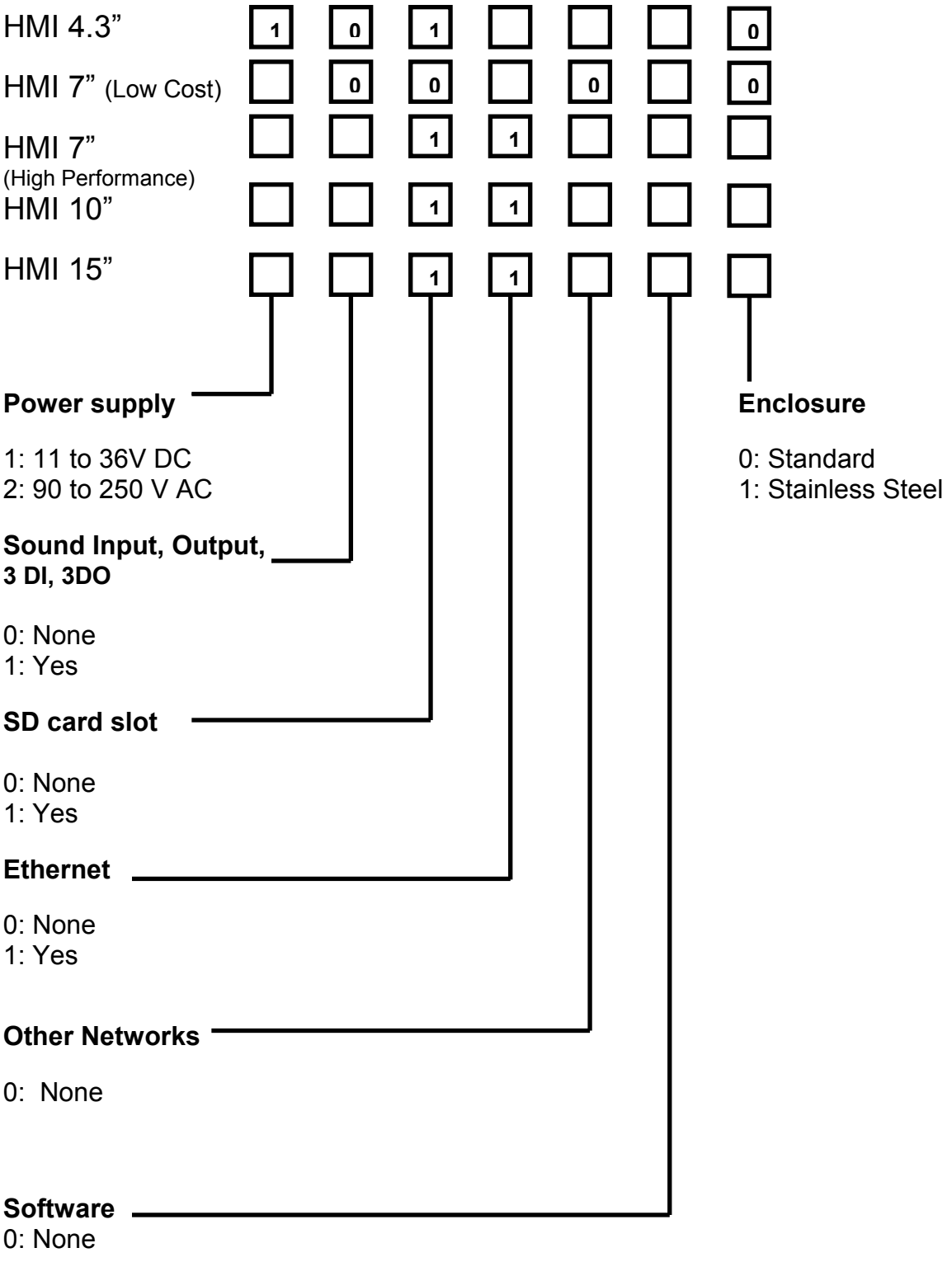
2.1.1 Technical Specifications

Model	HMI 4.3"	HMI 7" (LOW COST)	HMI 7" (HIGH PERFORMANCE)	HMI 10"	HMI 15"
Size	4.3"	7"	7"	10"	15"
Resolution (W X H in pixels)	480 x 272	800 x 480	800 x 480	1024 x 768	1024 x 768
Display type	TFT, Wide touch Screen	TFT, Wide touch Screen	TFT, Wide touch Screen	TFT touch screen	TFT touch screen
Colors	65,536	65,536	65,536	65,536	65,536
Touch screen Type	Resistive analog	Resistive analog	Resistive analog	Resistive analog	Resistive analog
Active display area (W X H mm)	95 X 54	152 X 91	152 X 91	203 X 152	304 X 228
MTBF back light at 25 ^{0}C	30,000 hrs	50,000 hrs	50,000 hrs	50,000 hrs	50,000 hrs
Backlight	LED	LED	LED	LED	CCFL
Brightness Adjustment	Yes	Yes	Yes	Yes	Yes
Screen Saver	Yes	Yes	Yes	Yes	Yes
Language Fonts	Yes	Yes	Yes	Yes	Yes
Main Hardware					
Processor, CPU speed	ARM11, 533Mhz	ARM11, 533Mhz	ARM Cortex-A8, 667Mhz	ARM Cortex-A8, 667Mhz	ARM Cortex-A8, 667Mhz
Flash Memory(ROM)	128 MB	128 MB	128 MB	128 MB	128 MB
SDRAM(RAM)	128 MB	128 MB	256 MB	256 MB	256 MB
Operating system	WinCE 6.0	WinCE 6.0	WinCE 6.0	WinCE 6.0	WinCE 6.0
Real Time Clock	Yes	Yes	Yes	Yes	Yes
Buzzer	Yes	Yes	Yes	Yes	Yes
Sound Output	N.A	N.A	Option	Option	Option
SD card slot	Yes	N.A	Yes	Yes	Yes
Communication ports/Interfaces					
RS232C, DB9 Male	1	1	1	1	1
RS232C/ RS422/ RS485, DB25 Female	1	1	1	1	1
Ethernet 10/100 Mbps, RJ45	Option	Option	1	2	2
USB Host	1	1	1	1	1

General specifications					
Rated Voltage	24 V DC	24 V DC, 110/220V AC	24 V DC, 110/220V AC	24 V DC, 110/220V AC	24 V DC, 110/220V AC
Power supply	11-36V DC	11-36V DC, 90-250V AC	11-36V DC, 90-250V AC	11-36V DC, 90-250V AC	11-36V DC, 90-250V AC
Rated Current	0.91A (DC)	1.09A (DC), 0.27A (AC)	1.18 A(DC), 0.29A(AC)	1.36A (DC), 0.33A(AC)	2.46A(DC), 0.6A(AC)
Power Consumption (with out sound output)	10 W	12W	13W	15W	27W
Power on LED indicator	Yes	Yes	Yes	Yes	Yes
Outer dimensions (W X H X D mm)	140 X 116 X 57	212 X 156 X 57	212 X 156 X 57	325 X 263 X 56	400 X 310 X 56
Mounting depth (mm)	51	51	51	50	50
Panel cut (W X H mm)	123^{+1} X 99^{+1}	197^{+1} X 141^{+1}	197^{+1} X 141^{+1}	310^{+1} X 248^{+1}	367^{+1} X 289^{+1}
Protection	IP65 front, IP20 rear	IP65 front, IP20 rear	IP65 front, IP20 rear	IP65 front, IP20 rear	IP65 front, IP20 rear
Front bezel, housing	Plastic, plastic	Plastic, plastic	Aluminum, plastic	Aluminum, metal	Aluminum, metal
Stainless Steel front bezel (Option)	N.A	N.A	Option, IP66K	Option, IP66K	Option, IP66K
Installation	Panel Mount	Panel Mount	Panel Mount	Panel Mount	Panel Mount
Net Weight (Kg)	0.5	1.2	1.4	3.6	5.1

3. Ordering Code

3.1 HMI ordering code



Specify WinCE Core or WinCE Professional version as special note at Software

3.2 HMI Spares part list

3.2.1 HMI 4.3”

Part Number	Part number
Main Board	HMA045
IO Board	HIO045
LCD Display Module	321MODU-LM0451-A0
Power Fuse 4 Amp (DC power)	10350-15402-01-00
DC power plug	10343-11027-00-00

3.2.2 HMI 7” (Low Cost)

Part Number	Part number
Main Board	HMA073
IO Board	HIO073
90-250VAC power board	HPM751
11-36VDC power board	HPM752
LCD Display Module	322MODU-LM0731-A0
Power Fuse 4 Amp (DC power)	10350-15402-01-00
DC power plug	10343-1103A-00-00
AC power plug	10343-1103A-01-00
Resistor 2.4/1w (AC power)	10301-42409-55-00

3.2.3 HMI 7” (High Performance)

Part Number	Part number
Main Board	HMA075
IO Board	HIO075
Sound Board	HSB075
90-250VAC power board	HPM751
11-36VDC power board	HPM752
LCD Display Module	323MODU-LM0751-A0
Power Fuse 4 Amp (DC power)	10350-15402-01-00
Resistor 2.4/1w (AC power)	10301-42409-55-00
DC power plug	10343-1103A-00-00
AC power plug	10343-1103A-01-00
DI/DO plug	10343-1208B-00-00

3.2.4 HMI 10”

Part Number	Part number
Main Board	HMA105
Display Board	HDP105
Connection Board	HCB105
Sound Board	HSB105
90-250VAC power board	HPM751
11-36VDC power board	HPM752
LCD Display Module	324MODU-LM1051-A0
Power Fuse 4 Amp (DC power)	10350-15402-01-00
Resistor 2.4/1w (AC power)	10301-42409-55-00
DC power plug	10343-1103A-00-00
AC power plug	10343-1103A-01-00
DI/DO plug	10343-1208B-00-00

3.2.5 HMI 15”

Part Number	Part number
Main Board	HMA155
Backlight Board	HBL155
Sound Board	HSB105
90-250VAC power board	HPM751
11-36VDC power board	HPM754
LCD Display Module	325MODU-LM1551-A0
Power Fuse 6.3 Amp (AC power)	10350-15632-01-00
Resistor 2.4/1w (AC power)	10301-42409-55-00
DC power plug	10343-1103A-00-00
AC power plug	10343-1103A-01-00
DI/DO plug	10343-1208B-00-00

It is possible to change power supply from AC to DC and vice versa (Except HMI 4.3”) by replacing power supply board, after replacing power board, the label for marking power input range located on the enclosure has to be changed.

3.3 Reserved

3.4 Accessories part numbers

Part Number	Description
WPG045	Gasket for HMI 4.3” (For dust and Moisture protection)
WPG073	Gasket for HMI 7” (LOW COST)/ HMI 7” (HIGH PERFORMANCE) (For dust and Moisture protection)
WPG105	Gasket for HMI 10” (For dust and Moisture protection)
WPG155	Gasket for HMI 15” (For dust and Moisture protection)
HMB045	HMI Mounting Brackets

4. Installation

4.1 Installation

Guidelines

Stainless steel front HMI has sharp edges and more weight. Enough care should be taken while inserting HMI into enclosure/panels using proper hand gloves. Improper handing may cause injury personal during installation of HMI into enclosure/panels.

1. The HMI is intended for indoor use and not in any hazardous area.
2. HMI device should be installed in suitable enclosure/panels/cabinets/housings.
3. Avoid facing of HMI screen directly exposed to sun light.
4. Avoid installation in high vibration area/ moving parts.
5. Avoid installation near to high radiation/noise emitting devices like motors, transformers, variable frequency drives, inverters, UPS, cellular towers etc.
6. Avoid installation in areas where there is the presence of vapors, gases, oils, lubricants, chemicals etc.
7. Install HMI at suitable height and location which is easy accessible to operators.
8. When HMI is installed inside main panel, make sure that proper vents are available for the main panel, ambient temperature inside the panel is not exceeded beyond HMI specifications, operator is alerted incase of exceeding temperature limits.
9. When HMI is installed on panel front door, check depth of the HMI and make sure that there is enough clearance available inside the panel after closing the main panel door.
10. A sufficient panel gage should be used in the main panel to firmly install HMI. Take care when using stainless steel fronts as weight is heavy compared with alloy or plastic fronts. Use rubber gaskets properly to achieve degree of Ingress Protection.
11. Use panel cut out as specified and firmly attach all mounting clips.
12. Maintain proper clearances around the HMI panel approx: 50 mm on all directions to make sure that it is easy to remove HMI for maintenance purpose and temperature dissipates by natural air cooling method.
13. Use proper line protections in power supply line via fuses, circuit breakers etc.
14. Connect earth properly to the HMI enclosures/panels/cabinets/housings.

15. Use proper cables, connect to ground properly before connecting power supply to HMI

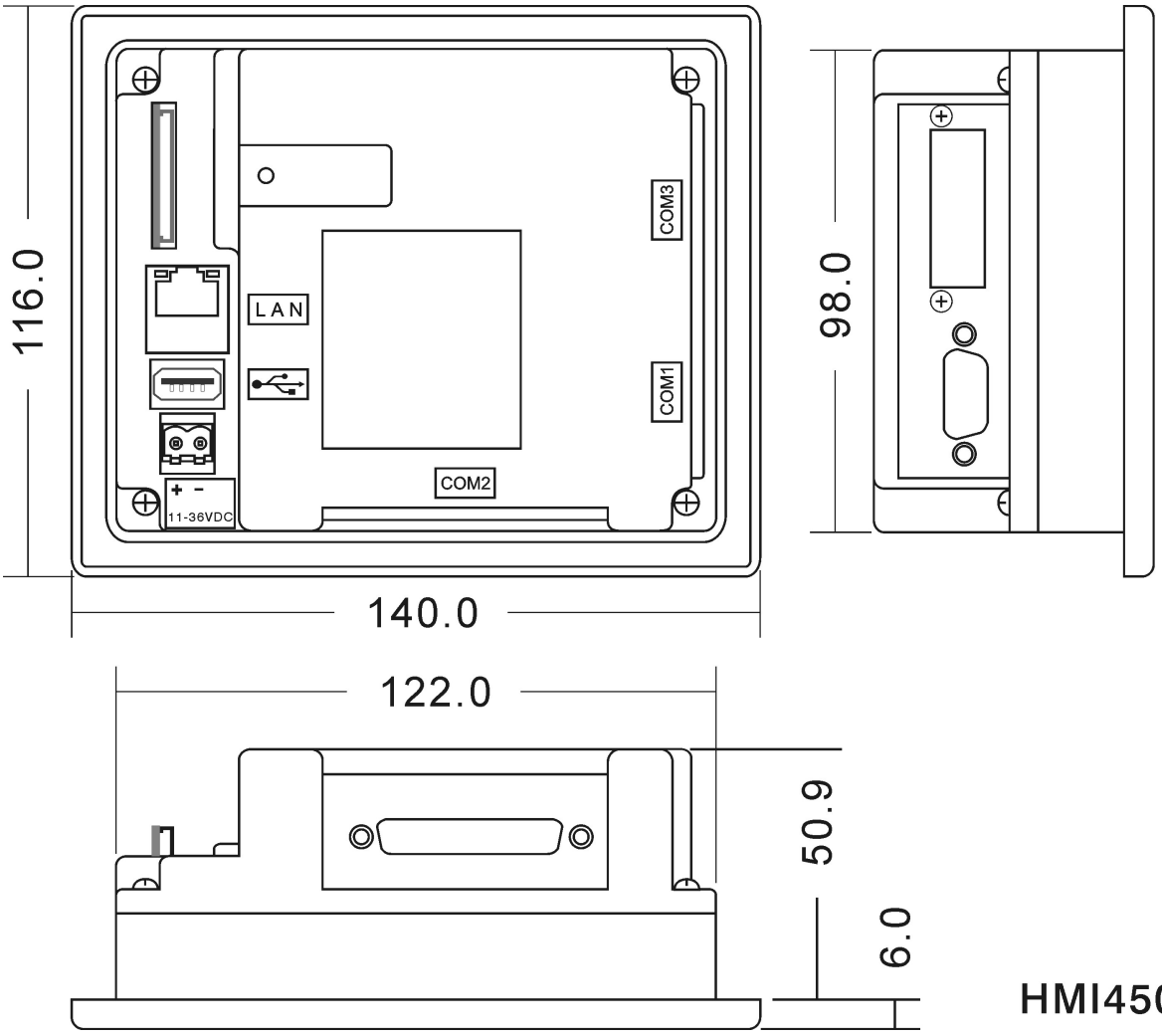
16. Thoroughly check voltage levels accepted by HMI, measure voltage levels with a multimeter before connecting them with HMI.

17. While using HMI with stainless steel front for wash down applications, make sure that panels/enclosures/cabinets/housings are perfectly closed to avoid water entry inside panels causing damages to the equipment and injury to operating personal.

18. Improper installation voids warranty.

4.2 Dimensional drawings

4.2.1 Dimensional drawings of the HMI 4.3”



Note: All dimensions are in mm. Tolerance +/- 1 mm.

Panel cutout: 123^{+1} X 99^{+1}

COM1 **DB9, Male**

COM2 **DB25, Female**

COM3 **Network option**

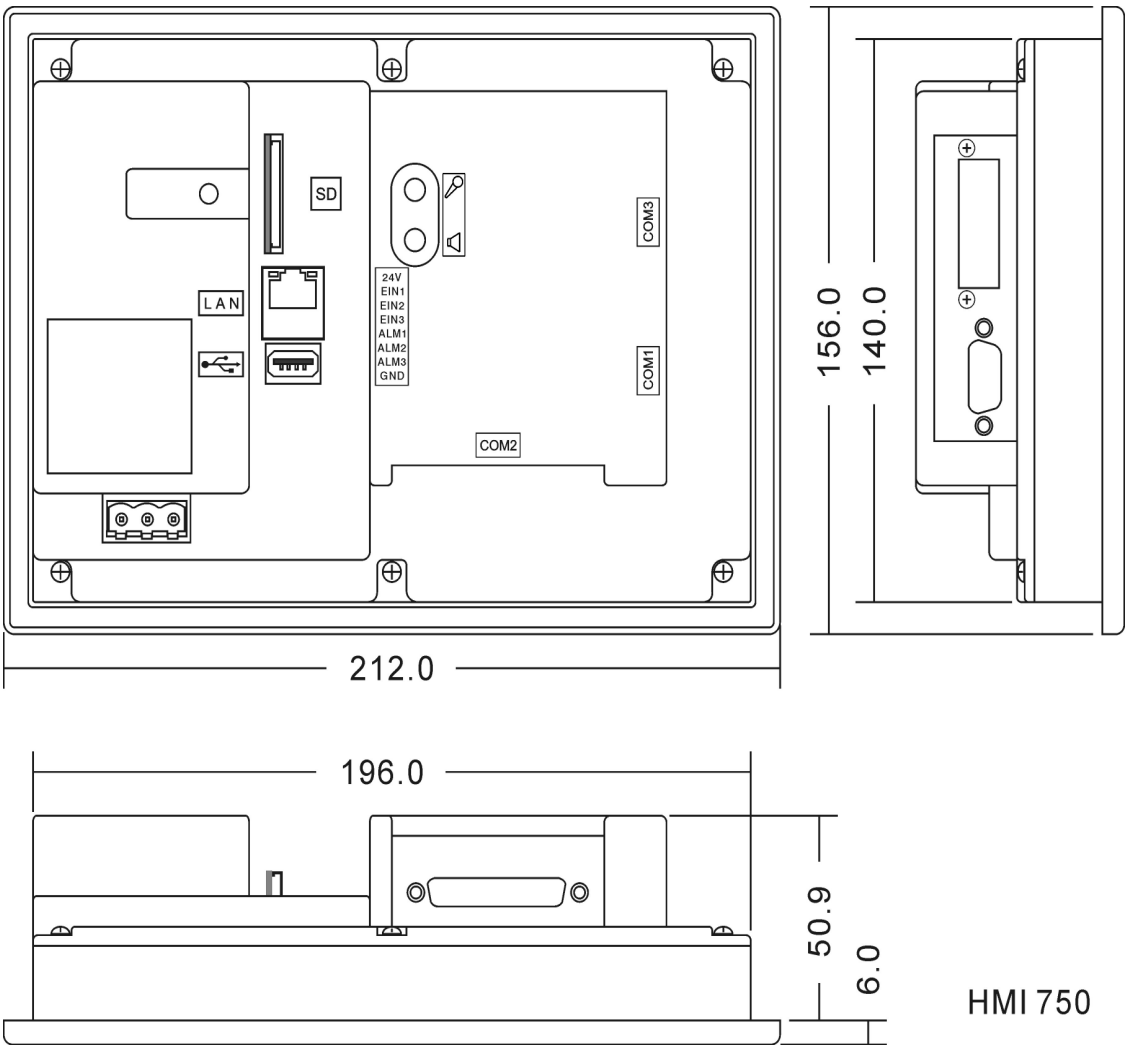
USB port

LAN, Ethernet (RJ45)

Power supply

SD slot

4.2.2 Dimensional drawings of the HMI 7”



Note: All dimensions are in mm. Tolerance +/- 1 mm

Panel cutout: 197^{+1} X 141^{+1}

COM1 **DB9, Male**

LAN, Ethernet (RJ45)

SD slot

COM2 **DB25, Female**

USB port

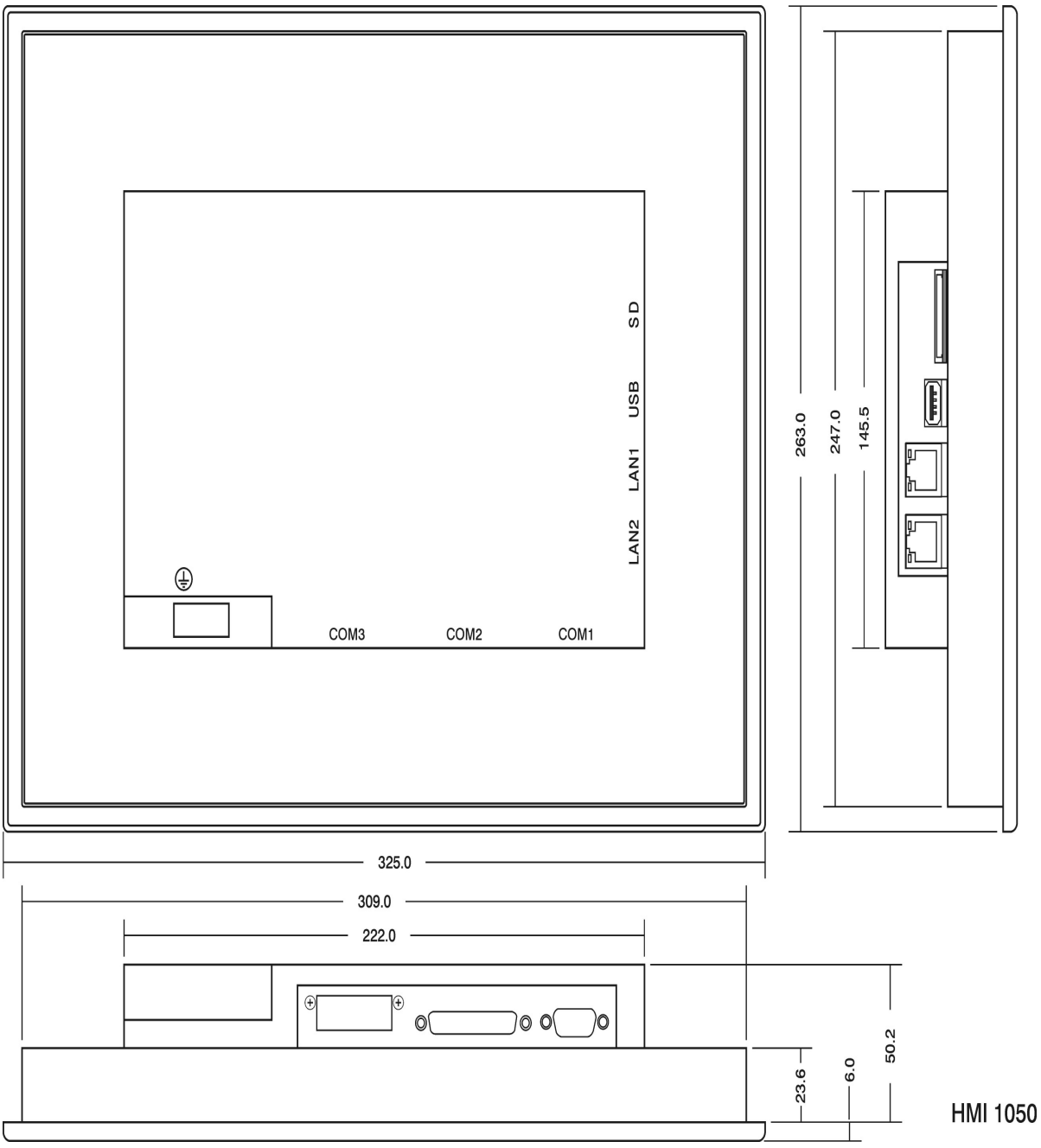
Power supply

COM3 **Network option**

24V
EIN1
EIN2
EIN3
ALM1
ALM2
ALM3
GND

Terminals for DI/DO (future use)

4.2.3 Dimensional drawings of the HMI 10”



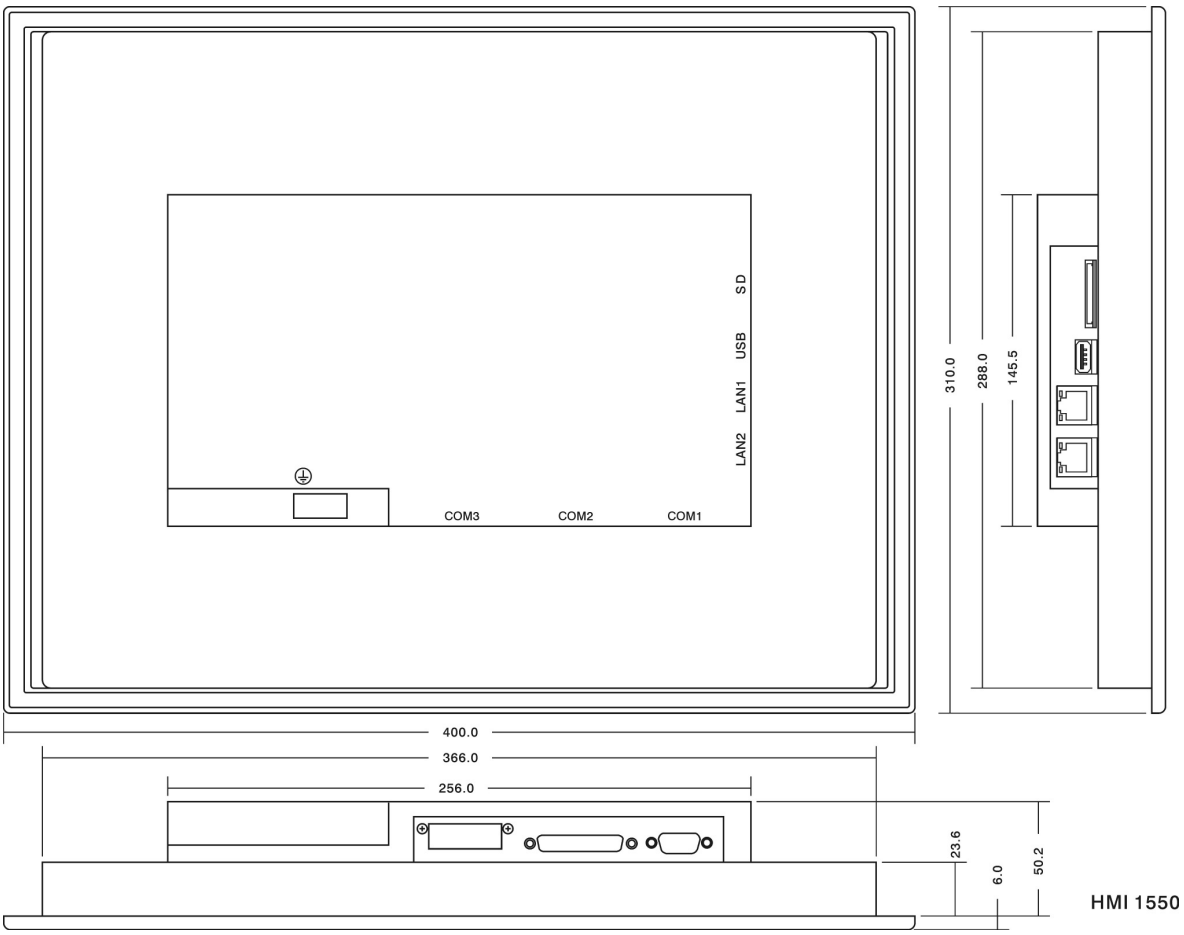
Note: All dimensions are in mm. Tolerance +/- 1 mm

Panel cutout: 310^{+1} X 248^{+1}

COM1 **DB9, Male** COM3 **Network option** **LAN1, Ethernet (RJ45)** **SD slot**

COM2 **DB25, Female** **LAN2, Ethernet (RJ45)** **Power supply** **USB port**

4.2.4 Dimensional drawings of the HMI 15”



Note: All dimensions are in mm. Tolerance +/- 1 mm

Panel cutout: 367^{+1} X 289^{+1}

COM1 **DB9, Male**

LAN1, Ethernet (RJ45)

SD slot

COM2 **DB25, Female**

LAN2, Ethernet (RJ45)

Power supply

COM3 **Network option**

USB port

4.3 Mounting

It is possible to insert HMI in either vertical or horizontal direction in enclosures/ panels/ cabinets/ housings. Panel cut out is as follows.

If HMI to be installed vertically, while creating new project in HMI editor software, select resolution carefully at the beginning and then select the angle correctly during HMI start up at the panel. Please refer section “Instrument” at “HMI startup” about how to select angle for vertical installation.

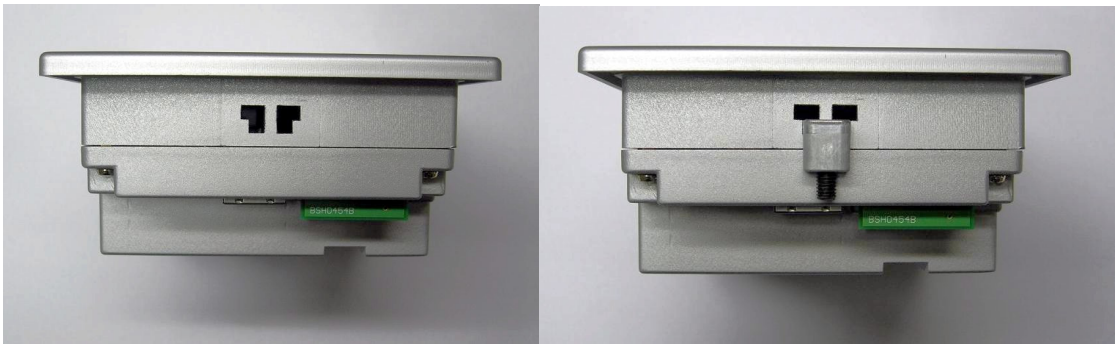
Horizontal Installation

Model	HMI 4.3”	HMI 7” (LOW COST)	HMI 7” (HIGH PERFORMANCE)	HMI 10”	HMI 15”
Width (mm)	123^{+1}	197^{+1}	197^{+1}	310^{+1}	367^{+1}
Height (mm)	99^{+1}	141^{+1}	141^{+1}	248^{+1}	289^{+1}
Depth (mm)	51	51	51	50	50

Vertical Installation

Model	HMI 4.3”	HMI 7” (LOW COST)	HMI 7” (HIGH PERFORMANCE)	HMI 10”	HMI 15”
Height (mm)	99^{+1}	141^{+1}	141^{+1}	248^{+1}	289^{+1}
Width (mm)	123^{+1}	197^{+1}	197^{+1}	310^{+1}	367^{+1}
Depth (mm)	51	51	51	50	50

HMI 4.3” : 4 nos. mounting clips
HMI 7” (LOW COST)/HMI 7” (HIGH PERFORMANCE) : 6 nos. mounting clips
HMI 10” : 10 nos. Mounting clips
HMI 15” : 12 nos. Mounting clips



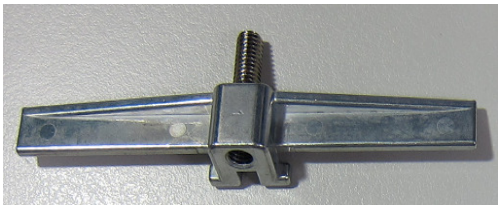
Mounting clips for HMI with Metal enclosures

Top view **Bottom View**

Use Proper Tools to open HMI enclosure.

Mounting clips for HMI with Plastic enclosures

Top view **Bottom View**



Tighten all mounting clips otherwise it may effect the touch panel operation and ingress protection will be compromised.

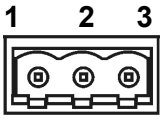
4.4 Power Supply

The following options are available.

1. AC Power, 90-250 V AC, 47~63 Hz, Universal AC power supply (Except HMI 4.3”)

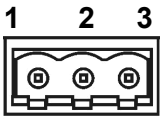
2. DC Power, 11-36 V DC

AC Power, 90-250 V AC, 47~63Hz



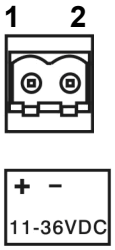
Pin	Description
1 ⏚	Earth
2	Neutral
3	Line

DC Power, 11-36 V DC



Pin	Description
1 ⏚	Earth
2	DC-
3	DC+

DC Power, 11-36 V DC (For HMI 4.3” only)



Pin	Description
1	DC +
2	DC -

Different power boards are available for above options and they will be fitted into HMI as per ordering code.

The protective earth terminal should be connected first before any other connection is made.

Do not open HMI enclosure in potentially explosive environments. If any service is required, switch off the power supply and bring HMI to environment which is clean. Use proper tools to open HMI enclosure. Repairs/servicing should be done by personal qualified, trained, experienced and authorized to perform these kind of tasks. Dangerous high voltages may be present in parts of PCB and improper servicing may cause shock and fatal injury to personal involved in job.

All local electrical regulations should be strictly followed while connecting power supply to HMI. Use proper rated cables, earth, grounding, shielding from reliable sources, line protections in power supply circuit via fuses etc, to avoid shock, injury/death to operating personal.

It is advised to use uninterrupted regulated power supply with adequate protections and filters in power supply line to be used with HMI.

The plug-in terminal block for connecting the power supply is supplied along with HMI and is designed for cables with a maximum cross-section of 1.5 $mm^{2.}$

4.5 Interfaces

Tighten all the screws after inserting connector at COM1/COM2, otherwise, communication failure with connected PLC/Inverter devices may occur because of loose connections.

4.5.1 COM1 port, DB9 male (RS232C)

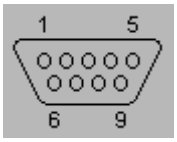


Fig: DB9 male

Pin number	Signal	Signal Name	Signal Direction
1	DCD	Data carrier detect	Output
2	RD	Receive data	Input
3	TD	Transmit data	Output
4	DTR	Data terminal ready	Output
5	SG	Signal Ground	-
6	DSR	Data set ready	Input
7	RTS	Request to send	Output
8	CTS	Clear to send	Input

9	RI	Ring Indicator	Input

4.5.2 COM2 port, DB25 Female (RS232C/RS422/RS485)

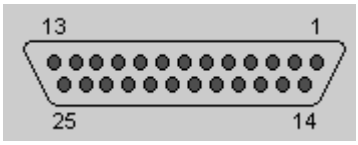


Fig: DB25 female

Pin number	Signal	Signal Name	Signal Direction	Type
1	FG	Frame Ground	-	-
2	TD	Transmit data	Output	RS232C
3	RD	Receive data	Input	RS232C
4	RTS	Request to send	Output	RS232C
5	CTS	Clear to send	Input	RS232C
6	DSR	Data set ready	Input	RS232C
7	SG	Signal Ground	-	5V-/RS232C
8	DCD	Data carrier detect	Output	RS232C
9	-	-	-	-
10	-	-	-	-
11	-	-	-	-
12	TXDA	Transmit data	Output	RS422/RS485
13	TXDB	Transmit data	Output	RS422/RS485
14	RTSA	Request to send	Output	RS422
15	RTSB	Request to send	Output	RS422
16	-	-	-	-
17	-	-	-	-
18	CTSA	Clear to send	Input	RS422
19	CTSB	Clear to send	Input	RS422
20	DTR	Data terminal ready	Output	RS232C
21	5 V +	5 V Power supply +	Output	-
22	RI	Ring Indicator	Input	RS232C
23	-	-	-	-
24	RXDA	Receive data	Input	RS422

25	RXDB	Receive data	Input	RS422

4.5.3 COM3 (Reserved)

4.5.4 Ethernet

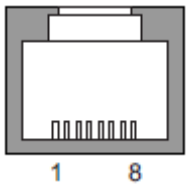


Fig: RJ45 connector

Ethernet, 10/100 Mbps

Pin	Description
1	Transmit (TX+)
2	Transmit (TX -)
3	Receive (RX+)
4	No connection
5	No connection
6	Receive (RX-)
7	No connection
8	No connection

For HMI 10” and HMI 15”, two Ethernet ports are supported.

4.5.5 USB Host

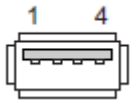


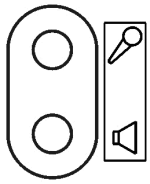
Fig: USB connector

Pin	Description
1	+ 5V DC (max 100 mA)
2	USB-DN
3	USB-DP
4	GND

4.5.6 SD slot

Use only SD card recommended by manufacturer.

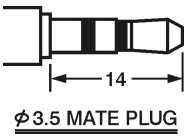
4.5.7 Sound input/Output



Sound Input: It is to connect Microphone. (Reserved to use in future)

Sound Output: It is to play audio files on trigger of Event/Alarm

Sound input/output connector: Use 3.5mm diameter with 14mm length stereo phone plug.



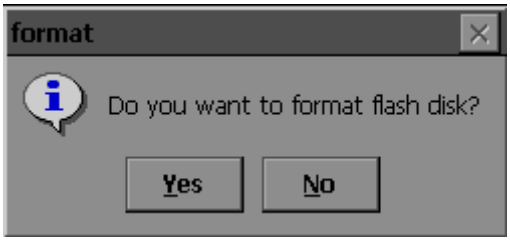
4.5.8 Reserved

4.6 Real Time Clock

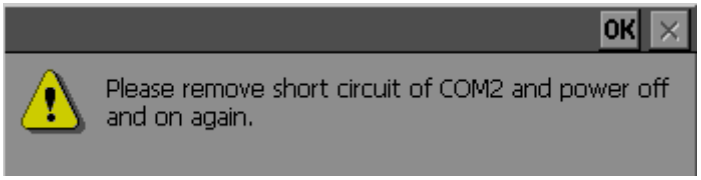
Item	Description
Make	Seiko Instruments
Model	MS621-FL11E
Rating	3V/4 mAH
Typical life time	10 yrs
Buffer period	6 months
Type	Rechargeable
Accuracy	Maximum +/- 2 sec/day

4.7 HMI Reset Procedure

Short Pin no.2 and Pin no.3 at COM2 in HMI. Then Power ON the HMI.



Press “Yes”



Remove short link across Pin2 and Pin3 at COM2 and then press “OK”.

Now, complete the calibration of touch screen at HMI

This reset procedure will clear all the contents in Resident flash and load default factory settings into Flash memory